A.Y. DADABHAI TECHNICAL INSTITUTE

----------TRUSTED TO DELİVER EXCELLENCE----------

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STUDY MATERIAL FOR DDCET EXAM

subject – physics

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Chapter-1 Units and Measurement

1. Zero error in any instrument is an example of …… error.
   A. **systematic** B. constant C. Random D. none
2. 0.00160 has ……. significant figures.
   A. 2 **B. 3** C. 4 D. 5
3. 10 newton = …….. dyne.
   A. 10^4
   B. 10^7
   C. 10^6
   D. 10^5
4. 4.100 μC=…….C.
   A. 10^{-9}
   B. 10^{-4}
   C. 10^{-6}
   D. 10^{-3}
5. Which of the following is not a derived physical quantity?
   A. Force
   B. Length
   C. Work
   D. Density
6. What is SI unit of acceleration?
   A. m/s^2
   B. ms
   C. m/s
   D. ms^2
7. SI unit of……is ampere.
   A. force
   B. electric current
   C. resistance
   D. conductance
8. 8.Which of the following is a fundamental unit?
   A. K
   B. m/s
   C. m3
   D. N
9. How many fundamentals units are there in SI?
   A. 3
   B. 7
   C. 2
   D. 1

10. Light year is a unit of ……..
    A. time
    B. energy
    C. intensity of light
    D. distance
11. Unit of solid angle is ……..
    A. radian
    B. candela
    C. steradian
    D. Second
12. Main scale of a vernier caliper is calibrated in mm. Length of 9 divisions on its main scale is equal to length of 10 divisions of its vernier scale. Calculate its least count.
    A. 0.01mm
    B. 0.1mm
    C. 0.9 mm
    D. 0.09mm
13. Pitch of a micrometer screw gauge is 1 mm. There are 50 divisions on its circular scale.
    Calculate its least count.
    A. 0.02mm
    B. 0.01mm
    C. 0.05 mm
    D. 0.1mm
14. Which one is the unit of force?
    A. Kg*m/s
    B. $Kg*m/s^2$
    C. Kg*m*s
    D. M*s/kg
15. A micrometer screw gauge has pitch of 0.5mm.if 50 divisions on its circular scale then least count is ____
    A. 0.001mm
    B. 0.1 mm
    C. 1 mm
    D. 0.01 mm
16. What would you use to measure the internal diameter of beaker in a lab?
    A. Vernier callipr
    B. Thermometer
    C. Micrometer screw
    D. Techo meter

17. SI unit of temperature is _____
    A. Fahrenheit
    B. Celsius
    C. Kelvin
    D. None of above
18. SI unit of power is _____
    A. Watt
    B. Joule
    C. Pascal
    D. kelvin
19. Which one of the following is basic unit of SI system?
    A. Watt
    B. Joule
    C. Pascal
    D. Ampere
20. The closeness of a measurement of the accepted value for a specific physical quantity is called _____
    A. Error
    B. Precision
    C. Pitch
    D. accuracy.
21. Which type of device used to measure current?
    A. Ammeter
    B. Voltmeter
    C. Galvanometer
    D. Techometer
22. Each measurement has a number and _____.
    A. Decimal
    B. Square
    C. Exponent
    D. Unit
23. Relative error measured in percentage is known as _____
    A. Absolute error
    B. Mean absolute error
    C. Percentage error
    D. None of above
24. 0.003120 has _____ significant figures.
    A. 1
    B. 2
    C. 3
    D. 4

25. 1 Joule=_____Arg.
    A. 10^5
    B. 10^{-5}
    C. 10^{-7}
    D. 10^7
26. SI unit of luminous intensity is ____
    A. Meter
    B. Mole
    C. Newton
    D. Candela
27. If the given vernier callipers has negative error, then we can say that the zeroth division of vernier scale will lie on _____ hand side of the zero mark division of main scale.
    A. Right
    B. Center
    C. Left
    D. None of the above
28. CGS unit of force is _____.
    A. Newton
    B. Pascal
    C. dyne
    D. D. Watt
29. During experiment, the reproducibility of measured value is known as _____.
    A. Accuracy
    B. Significance
    C. Precision
    D. Truthiness
30. To measure the depth of water in a glass, _____ is more suitable.
    A. Measure Tape
    B. Meter scale
    C. Vernier Callipers
    D. Micrometer screw gauge
31. Least count of Vernier Callipers is inversely proportional to
    A. Total number of divisions of vernier scale
    B. Coinciding division
    C. Length of main scale
    D. Maximum range of Vernier callipers
32. Which of the following is fundamental physical quantity?
    A. Force
    B. Momentum
    C. Pressure
    D. Length

33. Every measurement consists of a number and a _____.
    A. Decimal
    B. Unit
    C. Exponent
    D. Value
34. To measure inner diameter of water pipe, _____ is more suitable.
    A. CM Scale
    B. Meter Scale
    C. Vernier Caliper
    D. Micrometer Screw
35. Number of significant digits in 5.003400×10^7 is _____.
    A. 7
    B. 3
    C. 10000000
    D. 4
36. To measure inner diameter of water pipe, _____ is more suitable.
    A. CM Scale
    B. Meter Scale
    C. Vernier Caliper
    D. Micrometer Screw
37. Number of significant digits in 5.003400×10^7 is _____.
    A. 7
    B. 3
    C. 10000000
    D. 4
38. A main scale of the Vernier callipers is calibrated in mm. If 50 divisions of vernier scale coincides with 49 divisions of main scale then, the least count of this instrument is _____.
    A. 0.2 mm
    B. 0.02 mm
    C. 0.002 mm
    D. 2 mm
39. Value of surface tension of water in CGS system is 70 $dyne/cm$. Then this value in MKS system will be _____.
    A. $7 \times 10^{-2}\ N/m$
    B. $70\ N/m$
    C. $7 \times 10^{2}\ N/m$
    D. $7 \times 10^{3}\ N/m$
40. Rounding off 1859.98538 to 3 significant digits is _____.
    A. 1859
    B. 1800
    C. 1850
    D. 1860

41. Least count: Meter scale – 1 mm, Vernier Callipers – 0.1 mm, Micrometer screw gauge and Spherometer – 0.01 mm. Which has the least precision?
    A. Meter scale
    B. Vernier callipers
    C. Micrometer screw gauge and Spherometer
    D. None of these
42. What is the function of sliding strip or rod in Vernier callipers?
    A. to measure the diameter of certain objects
    B. to measure the radius of certain objects
    C. to measure the width of certain objects
    D. to measure the depth of certain objects
43. What is the no. of Significant figures in 5.690 x 10-3 is _____
    A. 1
    B. 2
    C. 3
    D. 4
44. For a Vernier caliper 1 division of main scale is 1mm and total 50 divisions in Vernier scale. It has _____ least count.
    A. ०.०1mm
    B. 0.02m m
    C. 0.1mm
    D. 0.2mm
45. _____ Physical quantity is derived from other physical quantities.
    A. Fundamental
    B. Derived
    C. Vector
    D. Scalar
46. 4. 1mm= _____ m.
    A. 10^{-1}
    B. 10^{3}
    C. 10^{-3}
    D. 10^{5}
47. 1 A^{0}=_____cm
    A. 10^{-10}
    B. 10^{8}
    C. 10^{10}
    D. 10^{-8}
48. Force =_____X Acceleration
    A. Mass
    B. Velocity
    C. Momentum
    D. Time

49. S.I. unit of luminous intensity is_____
    A. Kelvin
    B. Celsius
    C. Candela
    D. Mole
50. Which physical quantities is derived from the following?
    A. Acceleration
    B. Mass
    C. Length
    D. Temperature
51. 9. Which of the following instrument is used to measure the diameter of a thin wire?
    A. Vernier calipers
    B. Meter rule
    C. Protector
    D. Micrometer screw gauge
52. 10. S.I. unit of Surface tension is_____ .
    A. Newton x metre
    B. B. Newton/metre^2
    C. Newton x metre^2
    D. Newton/metre
53. 11. What is the formula for a micrometer screw gauge?
    A. LC=n/p
    B. LC=n
    C. LC=1/p
    D. LC=p/n
54. What is the formula for Vernier calipers?
    A. LC=n/m
    B. LC=n
    C. LC=1/m
    D. LC=M/N
55. S.I. unit of temperature is_____ .
    A. Kelvin
    B. Celsius
    C. Candela
    D. Mole
56. SI unit of electric current is ------
    A. Watt
    B. Coulomb
    C. Ampere
    D. Volt

Chapter-2 Electrostatics

1. Force between two static objects having electric charge is called …….
   A. Gravitational Force
   B. Strong Force
   C. Electrostatic Force
   D. Magnetic Force
2. SI unit of electric charge is …….
   A. Ampere
   B. Ohm
   C. Coulomb
   D. Tesla
3. Electric field lines originate from …….
   A. Positive Electric Charge
   B. Negative Electric Charge
   C. North Magnetic Pole
   D. South Magnetic Pole
4. SI unit of intensity of electric field is ……..
   A. JC
   B. J/C
   C. NC
   D. N/C
5. Device that stores electric charge is called …….
   A. Resistor
   B. Rectifier
   C. Transformer
   D. Capacitor
6. 20.Which type of material is inserted between plates of a parallel plate capacitor to increase its capacitance?
   A. Conductor
   B. Insulator
   C. Semiconductor
   D. all of these
7. SI unit of capacitance is …….
   A. Farad
   B. Coulomb
   C. Watt
   D. Ohm

8. The voltage between plates of a capacitor of capacitance 0.5 μF is 150 V. What will be electric charge on the plates?
   A. 300 C
   B. 300 μC
   C. 75 C
   D. **75 μC**
9. Two capacitors of capacitance 10 μF each are connected in series. Find equivalent capacitance.
   A. 20 μF
   B. 5 μF
   C. 0.2 μF
   D. 0.5 μF
10. What will be effect on the capacitance of a parallel plate capacitor when distance between its plates is doubled?
    A. Doubled
    B. Halved
    C. Remains Constant
    D. None Of These
11. What will be effect on the electrostatic force between two static electric charges when distance between them is halved?
    A. Doubled
    B. Halved
    C. Four times
    D. One fourth
12. Two capacitors are connected in parallel combination with a battery. Electric charge on plates of both capacitors is ……
    A. Equal
    B. Different
    C. Zero
    D. Infinite
13. In q=ne if q=electric charge, n= number of electron than e=_____
    A. Charge of proton
    B. Charge of electron
    C. A&B both
    D. None of above
14. Coulomb's force between charges depends directly on _____
    A. Charges
    B. Distance
    C. Permittivity of medium
    D. None of above

15. Which statement is true regarding electric field line?
    A. electric field line cross each other
    B. electric field line never cross each other
    C. A&B both
    D. None of above
16. Direction of electric field line is _____
    A. Positive charge to negative charge
    B. Negative charge to positive charge
    C. A&B both
    D. None of above
17. _____ Store charge.
    A. Capacitor
    B. Resistor
    C. Electric flux
    D. Magnetic flux
18. Capacitor obey _____ law
    A. Coulomb's law
    B. Ohm's law
    C. Kirchhoff's law
    D. None of above
19. Unit of capacitance is ____
    A. Ampere
    B. Volt
    C. Farad
    D. ohm
20. Unit of electric flux is ____
    A. Ampere*meter
    B. Volt*meter
    C. Faraday*meter
    D. ohm*meter
21. SI Unit of Intensity of electric field is.....
    A. V/m
    B. A/m
    C. V/m2
    D. V/C
22. When piece of a polythene is rubbed with wool, a charge of $-2 \times 10^{-7}\ C$ charge is developed on polythene, then charge developed on wool will be _____.
    A. $-2 \times 10^{-7}\ C$
    B. $-2 \times 10^{7}\ C$
    C. $+2 \times 10^{-7}\ C$
    D. $+2 \times 10^{7}\ C$

23. Following law is also known as "inverse square law "for the system of charges.
    A. Newtons Law
    B. Gauss Law
    C. Faraday's Law
    D. Coulomb's law
24. The force $F0$ between two identical charges becomes _____ when distance between them is reduced to $r2$
    A. F_0
    B. $4\ F_0$
    C. $2\ F_0$
    D. F_{02}
25. Equation for Coulomb's law for a system of two charges $q1$ and $q2$ placed inside a material of permittivity ε at a distance r is given by _____

A.	$F = \frac{1}{4\pi\epsilon}\frac{q_1q_2}{r^2}$	B.	$F = 4\pi\epsilon\frac{q_1q_2}{r^2}$
C.	$F = \frac{1}{4\pi\epsilon}\frac{q_1q_2}{r}$	D.	$F = \frac{1}{4\pi\epsilon}\frac{q_1q_2}{r^3}$

Ans:- A

26. Which of the characteristics of electric field line is correct?
    A. Electric Field lines can start from anywhere.
    B. Electric Field lines always form closed loop.
    C. Electric field lines can never cross each other.
    D. Electric Field lines always moves from lower potential region to higher potential region.
27. Amount of work done in bringing a unit charge from infinity to a given point is known as _____ at that point.
    A. Electric Filed
    B. Electric Flux
    C. Electric Force
    D. Electric Potential
28. Capacitor stores energy in form of _____.
    A. Magnetic field
    B. Gravitational Field
    C. Electric Field
    D. None of these
29. Electric potential varies with distance as ____.

Electric potential varies with distance as ____.			
A.	$\frac{1}{r^3}$	B.	$\frac{1}{r}$
C.	$\frac{1}{r^2}$	D.	r^2

ANS:- B

30. Capacitor stores energy in form of _____.
    A. Magnetic field
    B. Gravitational Field
    C. Electric Field
    D. None of these
31. What will be effect on capacitance when the area of the parallel plate capacitor is decreased?
    A. It will increase
    B. There will be no effect
    C. Initially it will increase then decrease
    D. It will decrease
32. A capacitor of 44 μF is connected to a battery of 12 V, then charge accumulated on the plates of capacitor will be ____
    A. 3.66 μC
    B. 528 μC
    C. 0.27 μC
    D. 56 μ
33. To prepare a capacitor bank (Just like power bank!!) of 1 μF, you need to connect Capacitors each of 1 nF in _____ connections.
    A. 1000, Series
    B. 1000000, Parallel
    C. 1000, Parallel
    D. 100, Series
34. Placing a dielectric material of di-electric constant K between two plates of capacitor leads to ____.
    A. Increase capacitance by K times
    B. Decrease capacitance by K times
    C. Increase capacitance by 2K times
    D. Does not change capacitance
35. SI unit of electric current is ------
    A. Watt
    B. Coulomb
    C. Ampere
    D. Volt
36. F= k q1q2 / r2 Where F is Force, q1 and q2 are charges; r is distance then unit of k is_____.
    A. N * m^2/ kg^2
    B. N * m^2* kg
    C. N * m^2/ c^2
    D. N * m^2* c^2

37. 16. 1pico farad=---------- farad
    A. 10^{-10}
    B. 10^{-12}
    C. 10-^{11}
    D. 10
38. 17. SI unit of electric charge is ------
    A. Watt
    B. Coulomb
    C. Ampere
    D. Volt
39. 18. The formula of electric current I =-------/t
    A. Q
    B. V
    C. E
    D. R
40. 19. S. I. unit of intensity of electric field is …….
    A. N/C
    B. C/m2
    C. A/m
    D. C/m
41. 4Ω, 6Ω and 10Ω Capacitances are connected in Parallel. The equivalent Capacitance will be -----
    A. 10Ω
    B. 1Ω
    C. 20Ω
    D. 40Ω
42. 2F, 4Ω, and 6Ω Capacitances are connected in series. The equivalent Capacitance will be -----
    A. 1.09 Ω
    B. 11.09 Ω
    C. 2.09 Ω
    D. 4.09 Ω
43. What is the formula for parallel plate capacitors?
    A. $C = \varepsilon_0/d$
    B. B. $C = \varepsilon_0 A/d$
    C. $C = d/A$
    D. D. $C = A/d$
44. 1 milli ampere = -------ampere
    A. 10^{-1}A
    B. 10^{-2}A
    C. 10^{-4}A
    D. 10^{-3}A

45. Capacitance formula is----------.
    A. C = V/Q
    B. $C = Q/V$
    C. C = V
    D. D. $C = Q$
46. When temperature increases the value of capacitance ----------.
    A. Increases
    B. B. Decreases
    C. C. Constant
    D. D. None of the above

47. 1micro farad=----------farad
    A. 10^{-6}
    B. B. 10^{-12}
    C. C. 10^{-1}
    D. D. 10^{-9}

Chapter-3 Heat and Thermodynamics

1. Temperature of boiling water in kelvin temperature scale is ……. K.
   A. 100
   B. 0
   C. 273.15
   D. 373.15
2. Freezing point of water in Fahrenheit temperature scale is…….. ^{0}F.
   A. 32
   B. 212
   C. 0
   D. 100
3. 29. Which of the following instrument is used to measure temperature?
   A. Barometer **B. Pyrometer** C. Anemometer D. Galvanometer
4. Heat energy required to increase temperature of an object by 1K is called……
   A. heat capacity
   B. specific heat
   C. latent heat
   D. internal heat
5. In which of the following mode of heat transfer, medium is not required?
   A. Conduction
   B. Convection
   C. Radiation
   D. All of these
6. Heat is transferred from one place to other due to difference in …….
   A. height
   B. energy
   C. temperature
   D. electric current
7. In which of the following mode of heat transfer movement of heated medium observed?
   A. Conduction
   B. Convection
   C. Radiation
   D. All of these
8. By which of the following method, heat energy flows through solids?
   A. Conduction
   B. Convection
   C. Radiation
   D. All of these

9. Which of the following instrument is used to measure heat?
   A. Pyrometer
   B. Calorimeter
   C. Barometer
   D. Thermometer
10. The absolute zero temperature is equal to …….
   A. 273.15 0C
   B. 273.15 0F
   C. -273.15 0C
   D. -273.15 0F
11. Which one from the following is filled in the bulb of a thermometer?
   A. Aluminium
   B. Copper
   C. Iron
   D. Mercury
12. SI unit of specific heat is ……
   A. J/(kg °C)
   B. cal/(kg K)
   C. cal/(kg °C)
   D. J/(kg K)
13. SI unit of linear thermal expansion is……
   A. 0C
   B. $0C^{-1}$
   C. K
   D. K^{-1}
14. All radiations incident on a black body get_____.
   A. refracted
   B. reflected
   C. Absorbed
   D. None
15. Increasing the temp of 50 gms of water by 10C requires_____?
   A. 1 Calorie
   B. 50 Calories
   C. 500 Calories
   D. 10 Calories
16. In which of the following mode of heat transfer gravity of earth is effected?
   A. Conduction
   B. Convection
   C. Radiation
   D. None of above

17. 100 ^{0}c = _____ kelvin
    A. 273
    B. 373
    C. 100
    D. 0
18. Heat transfer take place in solid by _____
    A. Conduction
    B. Convection
    C. Radiation
    D. None of above
19. By which of the way atmosphere of earth warms?
    A. Conduction
    B. Convection
    C. Radiation
    D. None of above
20. Thermal conductivity depend on ____
    A. Temperature
    B. Length of material
    C. Cross section area of material
    D. Type of material
21. Heat transfer take place in liquid and gas by _____
    A. Conduction
    B. Convection
    C. Radiation
    D. None of above
22. Black body absorb _____of heat compare to white body in standard condition.
    A. More
    B. Less
    C. Equal
    D. None of above
23. Which temperature is known as absolute zero temperature?
    A. 0 kelvin
    B. 273 kelvin
    C. 100 kelvin
    D. 32.5 kelvin
24. Thermometer used for measure _____
    A. Stress
    B. Strain
    C. Temperature
    D. Surface tention

25. 300 kelvin = _____^{0}c
    - **A. 27**
    - B. 127
    - C. 100
    - D. 227
26. Heat always flow from _____ to _____ temperature, in idle condition.
    - **A. Higher, lower**
    - B. Lower, higher
    - C. A & B both
    - D. None of above
27. Heat transfer in liquid and gas take places due to _____
    - A. Conduction
    - B. Radiation
    - **C. Convection**
    - D. None of above
28. 30. SI unit of Heat capacity is
    - A. $J\cdot$
    - **B. J/K**
    - C. $N\cdot$
    - D. N/K
29. Objects transmitting heat via radiation _____.
    - A. **Do not require medium**.
    - B. require liquid medium
    - C. Require solid medium.
    - D. require gas medium
30. Coldest part of freezer has temperature $-10\ ^\circ F$ then in Celsius it is _____
    - A. −10 ℃
    - **B. −23.3 ℃**
    - C. 10 ℃
    - D. 23.3 ℃
31. The boiling temperature of gold is 2966 °C, then in Kelvin it is _____
    - A. 2966.00 K
    - B. 2692.85 K
    - **C. 3239.15 K**
    - D. 1679.78 K
32. In which of the following process, heat convection does not happen?
    - A. Boiling of water
    - B. Heating of air surrounding near oven
    - C. Sea and Land breezes
    - **D. Heating of glass of a bulb due to filament**

33. A piece of glass is heated to high temperature and then when cold water is poured over it, a crack is generated in glass piece, the possible reason for this is _____.
    A. Its higher melting point
    B. Its higher specific heat
    C. Its higher thermal conductivity
    D. Its lower thermal conductivity
34. Heat capacity of oil is less than water. If equal mass of edible oil and water are given equal amount of heat. Then the temperature of _____ rise faster
    A. Oil
    B. Oil and water both
    C. Water
    D. None of these
35. The amount of heat energy required to raise the temperature of 1 gram of the substance by 1 $°C$ is known as _____
    A. Heat capacity
    B. Thermal Conductivity
    C. Specific Heat
    D. Thermal Linear Expansion
36. If a cup of tea at 50 °C is allowed to cool to room temperature at 25 °C, then heat released would be _____. Given heat capacity of tea is 5 kJ/K
    A. 50 k
    B. 125 kJ
    C. 6250 k
    D. 250 kJ
37. The unit of linear expansion co-efficient (α) is _____.
    A. m/°C
    B. m²/°C
    C. **1/°C** ✓
    D. °C/m
38. In which of the following process, convection does not take place Primarily?
    A. Boiling Water
    B. B. Heating Around a furnace
    C. Sea and land Bridge
    D. Warming of glass bulb due to filament
39. A steel ball is brought in contact with an identical ball of wood. then they will be equally hot or cold at ------
    A. 98.4 0C
    B. 98.4 0K
    C. 98.4 0F
    D. Room Temperature

40. At Atmospheric pressure When Equilibrium is established between pure water and its vapor temperature is taken ----------0K
    A. 100
    B. 273.15
    C. 373.15
    D. -273.16
41. An optical pyrometer is used to measure----------
    A. Light intensity
    B. Low temperature
    C. High temperature
    D. Temperature of distant objects
42. At what temperature do the Fahrenheit and Celsius scales coincide?
    A. 0
    B. 40
    C. 20
    D. -40
43. The boiling point of water which is used as one of the fixed point in the international practical scale k is given by
    A. 100
    B. 212
    C. 273.15
    D. 373.15
44. The instrument which measures the temperature of the source without direct contact is
    A. Bimetallic
    B. Mercury
    C. Pyrometer
    D. Thermocouple
45. Bimetallic thermometers do not have ----------to temperature changes are rapid.
    A. Ability
    B. Suitable
    C. Costly
    D. Complex
46. Which metal is used in thermometers?
    A. Mercury
    B. Silver
    C. Steel
    D. Gold
47. Give the relation between the Celsius scale and kelvin scale.
    A. t=T-273
    B. t=T+273.50
    C. t=T+273.15
    D. t=T-273.15

48. What is the S.I. unit of Specific Heat.
    A. J*kg*k
    B. J-1*kg*k
    C. J*kg/k
    D. J*kg-1*k-1
49. Heat transfer in liquid and gases takes place by_____.
    A. Conduction
    B. Radiation
    C. Convection
    D. Conduction & Radiation

Chapter-4 Wave motion and its applications

1. Time period of a wave having frequency 20 Hz is …….
   A. 0.2 s
   B. 0.02 s
   C. 0.5 s
   D. 0.05 s
2. Ultrasonic wave has frequency …….
   A. 20 Hz to 2000Hz
   B. more than 20kHz
   C. 20Hz to 20kHz
   D. less than 20 Hz
3. Wavelength and velocity of an electromagnetic wave is 1 cm and 3 X 10^8 m/s Respectively. Calculate its frequency.
   A. 3X10^{10} Hz
   B. 3X10^8 Hz
   C. 3X10^6 Hz
   D. 3X10^4 Hz
4. Piezoelectric method is used to produce …….
   A. light wave
   B. laser
   C. electromagnetic waves
   D. ultrasonic wave
5. Which of the following is relation between velocity (v), frequency (n) and wavelength (λ) of a wave?
   A. v=λ/n
   B. v=n/λ
   C. v=1/(nλ)
   D. v=nλ
6. Distance between two consecutive crests of a transverse wave is called …….
   A. amplitude
   B. frequency
   C. wavelength
   D. phase
7. Inverse of time period of a wave is called…….
   A. amplitude
   B. frequency
   C. wavelength
   D. phase

8. Frequency of a sound wave is 250 Hz. Find wavelength of sound wave if its velocity is 340 m/s.
   A. 0.74 m
   B. 1.36 m
   C. 0.76 m
   D. 1.56 m
9. Which of the following is not a characteristic of a sound wave?
   A. Amplitude
   B. frequency
   C. Wavelength
   D. brightness
10. Which of the following property is not found in sound wave?
   A. Reflection
   B. diffraction
   C. Interference
   D. polarisation
11. Which type of motion does a particle of medium execute due to wave in it?
   A. Periodic motion
   B. Relative motion
   C. Simple harmonic motion
   D. Circular motion
12. Wave in a spring is an example of …….
   A. transverse wave
   B. longitudinal wave
   C. non mechanical wave
   D. electromagnetic wave
13. What is effect of increase in humidity on velocity of sound wave in air?
   A. Velocity of sound increases
   B. Velocity of sound decreases
   C. Velocity of sound remains same
   D. Velocity of sound becomes zero
14. Velocity of sound in air ……. with increasing temperature.
   A. increases
   B. decreases
   C. remains constant
   D. none
15. In transverse waves, direction of vibration of particles of medium is ……. to the direction of propagation of wave.
   A. perpendicular
   B. parallel
   C. Both
   D. None

16. Time period of a wave having frequency 1000 Hz is_____
    A. 1
    B. 1/1000
    C. 1000
    D. 1/10
17. Distance between two consecutive crest or trough of a wave is called_____.
    A. wavelength
    B. amplitude
    C. frequency
    D. Time period
18. Light waves are _____waves
    A. longitudinal
    B. transverse
    C. mechanical
    D. none
19. What is distance between consecutive nodes and anti-Nodes in stationary waves?
    A. λ/4
    B. 4λ
    C. λ/2
    D. 2λ
20. Sound wave does not propagate in _____
    A. air
    B. water
    C. Steel
    D. vacuum
21. At constant temperature, velocity of sound in air is independent of _____.
    A. pressure
    B. temperature
    C. humidity
    D. none
22. Time required to complete one revolution is known as _____
    A. Amplitude
    B. Time period
    C. Frequency
    D. Wave length
23. In wave, particle of medium displaced maximum from its mean position is known as
    A. Amplitude
    B. Time period
    C. Frequency
    D. Wave length

24. Inverse of time period known as _____
    A. Amplitude
    B. Time period
    C. Frequency
    D. Wave length
25. SI unit of frequency is_____
    A. sec
    B. Hz
    C. Meter
    D. ohm
26. SI unit of wavelength is_____
    A. sec
    B. Hz
    C. Meter
    D. Ohm
27. Micrometre screw is used to measure which of the following?
    A. Thickness of metallic sheet
    B. Water level in 50ml beaker
    C. Height of a hall
    D. Width of the bench
28. If the distance between two charges is doubled, the force between them …….
    A. Becomes one fourth
    B. Becomes double
    C. Becomes half
    D. Becomes four times
29. What is the speed of light in a vacuum?
    A. 3x108 ms-1
    B. 3x10-8 ms-1
    C. 3x106 ms-1
    D. 3x10-6 ms-1
30. Audible sound wave has frequency_____.
    A. 20 Hz to 2000Hz
    B. more than 20kHz
    C. 20Hz to 20kHz
    D. less than 20 Hz
31. Volume of a Hall is 5000 m3. If total absorption is 200 O.W.U., then calculate reverberation time of hall.
    A. 0.0066s
    B. 4.125s
    C. 412.5s
    D. 4125s

32. Wave required medium to propagate is known as _____
    A. Mechanical wave
    B. Non mechanical wave
    C. Heat wave
    D. None of above
33. Wave not required medium to propagate is known as _____
    A. Mechanical wave
    B. Non mechanical wave
    C. Heat wave
    D. None of above
34. What does not change when sound enters from one medium to another?
    A. Wavelength
    B. Speed
    C. Frequency
    D. None of above
35. The propagation of sound is due to_____
    A. Rarefaction only
    B. Compression and rrefraction
    C. Compression only
    D. None of the above
36. _____ are non-mechanical waves.
    A. Sound waves
    B. Water waves
    C. String waves
    D. Light waves
37. The number of oscillations performed in one second is known as _____.
    A. Periodic Time
    B. Frequency
    C. Wavelength
    D. D. Amplitude
38. In longitudinal waves, the direction of oscillation of particles is _____.
    A. perpendicular to propagation of wave
    B. Parallel to propagation of wave
    C. different from each other
    D. varies with time
39. Radio-Mirchi station broadcast radio waves of frequency of $98.3 \times 10^6\ Hz$. If the velocity of radio wave is $3 \times 10^8\ m/s$ then the wavelength will be _____
    A. 294.9 m
    B. 32.76 m
    C. 3.05 m
    D. 0 m

40. House-hold A.C. mains have frequency of 50 Hz then periodic time will be ___
    A. 50 s
    B. 230 s
    C. 5 s
    D. 0.02 s
41. Sound waves having frequency more than 20,000 Hz is called _____.
    A. Infrasonic
    B. Ultrasonic
    C. Supersonic
    D. Hypersonic
42. To produce sound _____.
    A. It is necessary that object remains stationary
    B. Rotational motion of an object is necessary
    C. Circular motion of an object is necessary
    D. Vibration of an object is necessary
43. Distance between two consecutive crest of trough is called _____.
    A. Wavelength
    B. Displacement
    C. Amplitude
    D. Wave number
44. _____ waves propagate through compression-rarefaction.
    A. Light
    B. String
    C. Sound
    D. None of these
45. For Human-being, frequency band of an audible sound is _____.
    A. 20 Hz to 2000 Hz
    B. 200 Hz to 20,000 Hz
    C. 2 Hz to 20,000 Hz
    D. 20 Hz to 20,000 Hz
46. Periodic time of a simple pendulum is 2 sec, then its frequency is _____ Hz.
    A. 0.5
    B. 0.2
    C. 2
    D. 1
47. Velocity of sound in vacuum is _____.
    A. 330 m/s
    B. 3,00,000 m/s
    C. 0 m/s
    D. 341 m/s

48. Velocity of longitudinal wave will _____ with increase in density of medium.
    - **A. Decrease**
    - B. Increase
    - C. Remain constant
    - D. None of these
49. SONAR = ----------
    - A. Sound Navigation and Random
    - B. Signal Navigation and Random
    - **C. Sound Navigation and Ranging**
    - D. Small Navigation and Random
50. The frequency of a wave is 10 Hz. What is periodic time?
    - A. 100 sec
    - B. 10 sec
    - C. 0.01 sec
    - **D. 0.1 sec**
51. V=nλ, where λ is ---------
    - **A. Wavelength**
    - B. Frequency
    - C. Velocity
    - D. Refracted
52. The superposition of light waves is known as ---------
    - A. Diffraction
    - B. Polarization
    - **C. Interference**
    - D. Faraday
53. A body in _____ produces sound.
    - A. Rotational
    - **B. Vibration**
    - C. Circular motion
    - D. Linear motion
54. Quality of a sound depends on_____
    - A. Wavelength
    - **B. Frequency**
    - C. Periodic time
    - D. Amplitude
55. The ideal absorber of the sound is_____.
    - A. Carpet
    - B. Rubber
    - C. Open window
    - **D. Heavy curtain**

56. According to Laplace's propagation sound in air is
    A. Isothermal process
    B. Isochoric process
    C. Adiabatic process
    D. Isobaric process
57. Mathematical relation between velocity, frequency and wavelength of wave is
    A. V=f λ
    B. V=f/λ
    C. V + λ=f
    D. λ + f=V
58. Among these four which is not related to the types of laser?
    A. Solid
    B. Liquid
    C. Gas
    D. Plasma
59. When sound waves travels from air to denser medium it_____is not changed.
    A. Frequency
    B. Wavelength
    C. Phase
    D. Amplitude
60. What is the distance between consecutive Nodes and Anti Nodes.
    A. λ/2
    B. 4λ
    C. 2λ
    D. s λ/4
61. The wavelength of sound in air is 11 m and velocity of sound in air is 330 m/s. then its frequency is_____.
    A. 3 Hz
    B. 30 Hz
    C. 33 Hz
    D. 330 Hz
62. Sound waves propagates in a medium due to _____ and _____.
    A. Crest and Trough
    B. Crest only
    C. Compression and Rarefaction
    D. Trough only
63. Frequency of ultrasonic waves is _____
    A. Less than 20 Hz
    B. 20 Hz
    C. Greater than 20 KHz
    D. 20KHz

64. Electromagnetic waves are known as_____waves
    A. Non-mechanical
    B. Mechanical
    C. Transverse
    D. None of the above
65. Frequency of infrasonic waves is _____
    A. Less than 20 Hz
    B. 20 Hz
    C. Greater than 20 KHz
    D. D. 20KHz
66. Speed of light is maximum in_____.
    A. Vacuum
    B. Glass
    C. Water
    D. Diamond
67. The superposition of two waves overlap upon each other is known as _____.
    A. Diffraction
    B. Polarization
    C. Interference
    D. Dispersion
68. When light ray enters from air to water it _____.
    A. Passes through without bending
    B. Moves towards normal
    C. Moves away from normal
    D. Completely get reflected from the surface of water
69. The speed of light in an unknown medium is measured to be 2.2 × 108 m/s. If the speed of light in vacuum 3×10^8 m/s then the refractive index of the unknown medium is
    A. 0.73
    B. 0.15
    C. 6.6
    D. 1.36
70. Denser the medium (in terms of light), _____ the refractive index of the medium.
    A. Lower
    B. Constant
    C. Higher
    D. None of these
71. For given value of an incident angle, if the value of refraction angle becomes ____, such an incident angle is known as the critical angle.
    A. 0 °
    B. 360 °
    C. 180 °
    D. 90 °

Chapter-5 Fibre Optics

1. Which of the following are characteristics of LASER?
   A. Monochromatic
   B. Parallel
   C. Coherent
   D. All of these
2. What is relation between angle of incidence i and angle of reflection r?
   A. i=r
   B. i>r
   C. I<r
   D. i=2r
3. Velocity of light in air and a medium are 3x 10^8 m/s and 2 x 10^8 m/s respectively. Refractive index of the medium will be …….
   A. 0.5
   B. 0.75
   C. 1.5
   D. 1.00
4. Ordinary light is produced due to …….
   A. stimulated emission
   B. absorption
   C. population inversion
   D. spontaneous emission
5. Propagation of light through optical fibre occurs due to…… of light.
   A. Refraction
   B. dispersion
   C. Reflection
   D. total internal reflection
6. n1 and n2 are refractive indices of core and cladding of an optical fibre respectively. Which of the following is correct?
   A. n1=n2
   B. n1<n2
   C. n1>n2
   D. n1=n2=1
7. Which of the following is correct about light?
   A. Electromagnetic wave
   B. Transverse wave
   C. Non mechanical wave
   D. All of these

8. Find numerical aperture of an optical fibre having acceptance angle 60^0.
   A. 0.5
   B. 0.707
   C. 1
   D. 0.866
9. Which optical fibre is preferred for long distance communication?
   A. Step index single mode optical fibre
   B. Graded index multi-mode fibre
   C. Step index multi-mode optical fibre
   D. None of these
10. Which material is used to make optical fibre?
    A. Aluminium
    B. Copper
    C. Silver
    D. Glass and plastic
11. Which of the following is used as source of signal in optical fibre?
    A. electric voltage
    B. light
    C. electric current
    D. sound
12. Population inversion means that
    A. most of atoms are in ground state
    B. number of atoms in ground and excited states are equal
    C. most of atoms are in excited state
    D. no atoms are present in excited state
13. Optical pumping is used in which of the following laser?
    A. He-Ne laser
    B. Dye laser
    C. Semiconductor laser
    D. Ruby laser
14. Which of the following colour of light has the smallest wavelength?
    A. Violet
    B. Green
    C. Yellow
    D. Red
15. When a ray of light travels from a rarer medium to a denser medium its …….
    A. velocity increases
    B. velocity decreases
    C. frequency increases
    D. frequency decreases

16. Life time of excited state of an atom is ……. lifetime of its metastable state?
    - **A. more than**
    - B. less than
    - C. equal to
    - D. none
17. Fiber optics works on the principle of _____
    - **A. Total internal reflection**
    - B. Refraction
    - C. reflection
    - D. None of above
18. At any incident angle refraction angle become ninety, then incident angle known as ___
    - **A. Critical angle**
    - B. Fibre optics angle
    - C. Refraction angle
    - D. None of above
19. The principle of Laser is
    - A. Absorption
    - B. Emission
    - **C. Stimulated Emission**
    - D. Emitted Light
20. What is the common range of Numerical Aperture
    - **A. 0.13 to 0.20**
    - B. 1 to 1.35
    - C. 0.13 to 0.15
    - D. 0.13 to 0.25
21. $V=n\lambda$, where λ is
    - A. Frequency
    - B. Periodic time
    - **C. Wave length**
    - D. Velocity
22. As the periodic time is higher , frequency will be
    - A. more
    - B. constant
    - **C. less**
    - D. none of these
23. As the refractive index of the medium higher the velocity of light will be -------.
    - **A. less**
    - B. high
    - C. remains constant
    - D. becomes zero

24. LASER radiation is …….
    A. Highly directional
    B. Monochromatic
    C. coherent and stimulated
    D. all of above
25. Tubelight, electric bulb, flame of a candle all are examples of .....emission of light.
    A. Stimulated
    B. Spontaneous
    C. Absorption
    D. A and B both
25. If critical angle for a material to air is 30° the refractive index of the material will be
    A. 1
    B. 1.5
    C. 2
    D. 2.5
26. Identify the principle behind the sparkling of diamonds.
    A. Total internal reflection
    B. Refraction
    C. Reflection
    D. Optical activity
27. The capacity to collect the light by optical fiber is called_____
    A. Acceptance angle
    B. Numerical aperture
    C. Total internal reflection
    D. Refractive index
28. The full name of LASER
    A. LIGHT AMPLIFICATION by STIMULATED EMISSION of RADIATIONS
    B. LIGHT AMPLIFICATION and STIMULATED EMISSION of RADIATIONS
    C. LIGHT AMPLIFICATION by SPONTANEOUS EMISSION of RADIATIONS
    D. LIGHT AMPLIFICATION by SPONTANEOUS ENERGY of RADIATIONS
29. When the ray of change the medium,there occurs change in its dirction,this called _____ property of light.
    A. Reflection
    B. Refraction
    C. Polarization
    D. diffraction
30. For reflection, the incident angle and reflection angle
    A. Summation becomes 90°
    B. Summation becomes 0°
    C. Summation becomes 180°
    D. Summation becomes 360°

31. Sparkling of natural diamond is due to _____.
    A. Refraction
    B. Total internal reflection
    C. Reflection
    D. None of these
32. The value of critical angle _____ when a light ray enters from a special glass (η = 2.0) to air (η = 1.0).
    A. 0 °
    B. 60 °
    C. 30 °
    D. 90 °
33. LASER light consists of _____ wavelength/wavelengths, so such light is known as _____.
    A. Many, Polychromatic
    B. Many, monochromatic
    C. Single, Polychromatic
    D. Single, monochromatic
34. Due to less _____ of LAER light, it can travel up to very long distances without spreading.
    A. Dispersion
    B. Reflection
    C. Polarization
    D. Refraction
35. In defence field, _____ is used for communication which cannot be jammed.
    A. Microwave
    B. LASER light
    C. Radio wave
    D. None of these
36. _____ is used to prepare the core part of optical fiber.
    A. A .Copper
    B. Teflon
    C. High Purity Glass
    D. None of these
37. Refractive index of core is ____ the refractive index of cladding.
    A. Higher than
    B. Same as
    C. Zero
    D. Lower than
38. All the light rays coming to acceptance cone propagate through core via _____.
    A. Reflection
    B. Total Internal reflection
    C. Refraction
    D. Polarization

39. For long distance networking _____ optical fibers are used.
    A. Single mode type
    B. Step index type
    C. Multi-mode type
    D. Graded index type
40. In the He-Ne laser the ratio of He-Ne is ---
    A. 10:1
    B. 10:10
    C. 1:10
    D. 1:1
41. Velocity of light in air is 3x 108 m/s and 1.8 x 1010 cm/s in liquid. Refractive index of the liquid is_____.
    A. 0.066
    B. 1.66
    C. 0.0066
    D. 0.66
42. Snell's law is given by =_____.
    A. Sin i /sin r = constant
    B. Sin r/sin i= constant
    C. Sin i*sin r=constant
    D. A & B both
43. What is the value of acceptance angle of optical fibre having numerical aperture 0.5?
    A. 15^0
    B. 5^0
    C. 30^0
    D. 25^0
44. Optical fibre works on the principal of ----------.
    A. TIR
    B. SEM
    C. FM
    D. TEM
45. What is the full form of LASER?
    A. Light Amplification by stimulated emission of radiation
    B. Light Amplification by spontaneousemission of radiation
    C. Light Amplify by stimulated emission of radiation
    D. Light Amplification by stimulated emit of radiation
46. The wavelength of sound in air is 33 m and velocity of sound in air is 330 m/s. then its frequency is_____.
    A. 10 Hz
    B. 1 Hz
    C. 100 Hz
    D. 0.1 Hz

47. The Refractive index is given as----------.
    A. C/V
    B. 1/C
    C. V/C
    D. 1/V
48. The piezoelectric effect is a reversible process.
    A. Yes
    B. No
    C. Both A And B
    D. None of the above
49. The bending of a wave when it passes from one medium to another is called ----------.
    A. Positively charged
    B. Negatively charged
    C. Refraction
    D. Electromagnetic waves
50. Numerical aperture (NA) shows the _____capacity of optical fibre.
    A. Light gathering
    B. Light dispersion
    C. Heat dissipation
    D. Gathering magnetic field lines
51. Which fibre having lower numerical aperture?
    A. Single mode
    B. Step mode
    C. Multi mode
    D. Step index mode